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10/602,355	06/23/2003	Leonard N. Schiff	010129	1702

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Patents Department
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EXAMINER	
ORGAD, EDAN	

ART UNIT	PAPER NUMBER
2684	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/602,355	SCHIFF, LEONARD N.	
	Examiner	Art Unit	
	Edan Orgad	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *26,27,32* is/are allowed.

6)☒ Claim(s) *1-3,5,8,12-14,19,20,23-25,28 and 29* is/are rejected.

7)☒ Claim(s) *4,6,7,9-11,15-18,21,22,30 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *6/23/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/2/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 8, 12-14, 16, 19, 20, 23-25, 28, and 29 rejected under 35 U.S.C. 102(b) as being anticipated by Weideman et al. (European Patent Application No. 1,085,680).

Regarding claims 1 and 12, Weideman teaches of a method and apparatus, comprising: receiving a filter parameter at a satellite in orbit (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039); receiving an input signal at the satellite (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039); and programming a filter in the satellite to separate a plurality of sub-signals from the input signal based on the filter parameter (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039).

Regarding claims 2 and 13, Weideman teaches all the claimed limitations as recited in claims 1 and 12. Weideman further teaches of wherein the filter parameter comprises at least one of a high frequency limit for the input signal, a low frequency limit for the input signal, a median frequency to separate a first sub-signal from a second sub-signal within the plurality of sub-signals, and a set of frequency boundaries for each of the plurality of sub-signals (Figures 1B, 3, and 7 and paragraphs 0040 - 0042).

Regarding claims 3 and 14, Weideman teaches all the claimed limitations as recited in claims 1 and 13. Weideman further teaches of further comprising: filtering the input signal into the plurality of sub-signals as programmed based on the filter parameter (Figures 1B, 3, and 7

and paragraphs 0014 -0017, 0055); translating the plurality of sub-signals into an output signal (Figures 1B, 3, and 7 and paragraphs 0014 -0017, 0055); and transmitting the output signal from the satellite (Figures 1B, 3, and 7 and paragraphs 0014 -0017, 0055).

Regarding claims 5 and 16, Weideman teaches all the claimed limitations as recited in claims 3 and 14. Weideman further teaches of comprising: applying different gain amounts to selected ones of the plurality of sub-signals (Figure 7 and paragraphs 0049 and 0014 -0017).

Regarding claims 8 and 19, Weideman teaches all the claimed limitations as recited claims 3 and 14. Weideman further teaches of wherein the input signal comprises uplinks from a plurality of beams and the output signal comprises downlinks to the plurality of beams (Figures 4, 6, 7, 10, and 12, and paragraphs 0014 - 0017) and wherein translating the plurality of sub-signals into the output signal comprises: switching the plurality of sub-signals from particular uplinks to particular downlinks (Figures 4, 6, 7, 10, and 12, and paragraphs 0014 - 0017 and 0034 -0037).

Regarding claim 20, Weideman teaches all the claimed limitations as recited in claim 19. Weideman further teaches of wherein the switch matrix assigns at least one of the plurality of sub-signals received from an uplink corresponding to a particular beam to a downlink corresponding to a different beam (Figures 4, 6, 7, 10, and 12, and paragraphs 0014 - 0017 and 0034 -0037).

Regarding claim 23, Weideman teaches of a communications device, comprising: a receiver and a transmitter, coupled to the other, and each adapted for use in a high altitude environment (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039); and control circuitry, coupled to the receiver and transmitter, adapted to control operating characteristics of

the receiver and transmitter based, at least in part, upon one or more instructions for allocating channel capacity between an uplink and a downlink (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039).

Regarding claim 24, Weideman teaches all the claimed limitations as recited in claim 23. Weideman further teaches of comprising circuitry for monitoring the amount of forward and return traffic processed by the communications device (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039).

Regarding claim 25, Weideman teaches all the claimed limitations recited in claim 24. Weideman furthers teaches of further comprising circuitry for generating instructions for allocating channel capacity between an uplink and a downlink based, at least in part, on the amount of forward and return traffic processed by the communications device (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, 0039, and 0052).

Regarding claim 28, Weideman teaches of apparatus, comprising: means for receiving a filter parameter at a satellite in orbit (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039); means for receiving an input signal at the satellite (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039); and means for programming a filter in the satellite to separate a plurality of sub-signals from the input signal based on the filter parameter (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039).

Regarding claim 29, Weideman teaches all the claimed limitations as recited in claim 28. Weideman further teaches of comprising: means for filtering the input signal into the plurality of sub-signals as programmed based on the filter parameter (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039); means for translating the: plurality of sub-signals into an output

signal; and means for transmitting the output signal from the satellite (Figures 1B, 3, and 7 and paragraph 0009, 0014 -0017, and 0039).

Allowable Subject Matter

Claims 4, 6, 7, 9-11, 15-18, 21, 22, 30 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 4, the cited prior art does not teach or fairly suggest of wherein: the input signal comprises an uplink from a plurality of earth stations to the satellite, said plurality of earth stations comprising a gateway and a user station; the output signal comprises a downlink from the satellite to the plurality of earth stations; and the plurality of sub-signals comprise a first sub-signal and a second sub-signal, wherein the first sub-signal comprises a forward link from the gateway to the user station, and the second sub-signal comprises a return link from the user station to the gateway.

Regarding claim 6, the cited prior art does not teach or fairly suggest of wherein the plurality of sub-signals include a first sub-signal and a second sub-signal, and wherein translating the plurality of sub-signals comprises: multiplying the first sub-signal by a first number to produce a first amplified signal; multiplying the second sub-signal by a second number to produce a second amplified signal, said second number being different from said first number; and adding the first amplified signal and the second amplified signal.

Regarding claim 7, the cited prior art does not teach or fairly suggest of wherein filtering the input signal comprises: sampling the input signal at a sample rate to produce a sample

stream; quantizing each sample of the sample stream into a particular number of bits; and processing the sample stream into the plurality of sub-signals.

Regarding claim 9, the cited prior art does not teach or fairly suggest of wherein switching the plurality of sub-signals comprises assigning at least one of the plurality of sub-signals received from an uplink corresponding to a particular beam to a downlink corresponding to a different beam.

Regarding claim 10, the cited prior art does not teach or fairly suggest of further comprising: receiving an original signal at the satellite, said original signal having a first center frequency and a first bandwidth; and down-converting the original signal to the input signal, said input signal having a second center frequency equal to one-half of the bandwidth plus a frequency margin, and said input signal having the first bandwidth.

Regarding claim 11, the cited prior art does not teach or fairly suggest of further comprising: receiving a first signal at the satellite, said first signal having a bandwidth; down-converting the first signal to a first intermediate frequency (IF); filtering the down-converted first signal so as to produce a plurality of N intermediate signals, each of the intermediate signals having 1/N of the bandwidth; and down-converting each of the intermediate signals to a plurality of component signals, said plurality of component signals including the input signal, each of the component signals having a high frequency equal to 1/N of the bandwidth plus a frequency margin, and each of said component signals having IN of the bandwidth.

Regarding claim 15, the cited prior art does not teach or fairly suggest of wherein: the input signal comprises an uplink from a plurality of earth stations to the satellite, said plurality of earth stations comprising a gateway and a user station; the output signal comprises a downlink

from the satellite to the plurality of earth stations; and the plurality, of sub-signals comprise a sub-signal and a second sub-signal, wherein the first sub-signal comprises a. forward link from the gateway to the user station, and the second sub-signal comprises a return link from the user station to the gateway.

Regarding claim 17, the cited prior art does not teach or fairly suggest of wherein the plurality of sub-signals include a first sub-signal and a second sub-signal, and wherein the frequency translator comprises: a first digital multiplier to multiply the first sub-signal by a first number to produce a first amplified signal; a second digital multiplier to multiply the; second sub-signal by a second number to produce a second amplified signal, said second number being different from said first number; and a digital adder to add the first amplified signal and the second amplified signal.

Regarding claim 18, the cited prior art does not teach or fairly suggest of wherein the programmable filter comprises: a sampler to sample the input signal at a sample rate to produce a stream of samples each having a particular number of bits; and a processor to process each sample into the plurality of sub-signals.

Regarding claim 21, the cited prior art does not teach or fairly suggest of further comprising: a down-converter to receive an original signal at the satellite, said original signal having a first center frequency and a bandwidth, said down-converter adapted to down convert the original signal to the input signal, said input signal having a second center frequency equal to one-half or the bandwidth plus a frequency margin, and said input signal having the bandwidth.

Regarding claim 22, the cited prior art does not teach or fairly suggest of further comprising: an analog filter to receive an original signal at the satellite, said original signal

having a bandwidth, said analog filter to filter the original signal into a plurality of N intermediate signals, each of the intermediate signals having 1/N of the bandwidth; and a down-converter to down-convert each of the intermediate signals to a plurality of component signals, said plurality of component signals including the input signal, each of the component signals having a high frequency equal to 1/N of the bandwidth plus a frequency margin, and each of said component signals having 1/N of the bandwidth.

Regarding claim 30, the cited prior art does not teach or fairly suggest of further comprising: means for receiving an original signal at the satellite, said original signal having a first center frequency and a first bandwidth; and means for down-converting the original signal to the input signal, said input signal having a second center frequency equal to one-half of the bandwidth plus a frequency margin, and said input signal having the first bandwidth.

Regarding claim 31, the cited prior art does not teach or fairly suggest of further comprising: means for receiving a first signal at the satellite, said first signal having a bandwidth; means for down -converting the first signal to a first intermediate frequency (IF); means for filtering the down-converted first signal so as to produce a plurality of N intermediate signals, each of the intermediate signals (having 1/N of the bandwidth; and means for down-converting each of the intermediate signals to a plurality of component signals, said plurality of component signals including the input signal, each of the component signals having a high frequency equal to UN of the bandwidth plus a frequency margin, and each of said component signals having 1/N of the bandwidth.

Claims 26, 27 and 32 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 26, the cited prior art does not teach or fairly suggest of a method of operating a communications system, comprising: establishing a first portion of a frequency bandwidth to be received and processed by a satellite as a forward uplink, and a second portion of the frequency bandwidth to be received and processed by the satellite as a return uplink, the first and second portions comprising the total of the frequency bandwidth; monitoring traffic volume on each of the forward and return uplinks; determining a third portion of the frequency bandwidth to be received and processed by a satellite as a forward uplink, and a fourth portion of the frequency bandwidth to be received and processed by the satellite as a return uplink, the third and fourth portions comprising the total of the frequency bandwidth; transmitting instructions to the satellite, the satellite including circuitry responsive to the transmitted instructions, such that the amount of frequency bandwidth allocated to the forward and return uplinks is allocated in proportion to the monitored traffic volume on each of the forward and return uplinks.

Regarding claim 32, the cited prior art does not teach or fairly suggest of an apparatus for use in operating a communications system, comprising: means for establishing a first portion of a frequency bandwidth to be received and processed by a satellite as a forward uplink, and a second portion of the frequency bandwidth to be received and processed by the satellite as a return uplink, the first and second portions comprising the total of the frequency bandwidth; means for monitoring traffic volume on each of the forward and return uplinks, means for determining a third portion of the frequency bandwidth to be received and processed by a satellite as a forward uplink, and a fourth portion of the frequency bandwidth to be received and

processed by the satellite as a return uplink, the third and fourth portions comprising the total of the frequency bandwidth; means for transmitting instructions to the satellite, the satellite including circuitry responsive to the transmitted instructions, such that the amount of frequency bandwidth allocated to the forward and return uplinks is a located in proportion to the monitored traffic volume on each of the forward and return uplinks.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,587,687 Multiple satellite fade attenuation control system.

US 6,192,240 Advanced subscriber outage notification methods.

US 5,952,969 Method and system for determining the position of mobile radio terminals.

US 5,871,181 Artificial satellite communication system.

US 5,822,680 Frequency sharing for satellite communication system.

US 5,790,954 Methods of requesting volunteers for handoff in a cellular system.

US 5,551,624 Medium-earth-altitude satellite-based cellular telecommunications.

US 5,500,648 Geolocation responsive radio telecommunication system.

US 5,483,664 Cellular communications with scheduled handoffs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edan Orgad whose telephone number is 571-272-7884. The examiner can normally be reached on 8:00AM to 5:30PM with every other Friday off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

4/15/05

EDAN ORGAD
PATENT EXAMINER, TELECOMM.